



Evaluation of the Knowledge and Practice of Pharmaceutical Care among Hospital Pharmacists in Secondary and Tertiary Hospitals in Lagos State, Nigeria

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ABSTRACT

Pharmaceutical care is the contemporary pharmacy practice worldwide. This study assessed and compared the extent of involvement of pharmacists in secondary and tertiary health institutions in Lagos State, Nigeria with the provision of pharmaceutical care. A cross sectional study was carried out involving 252 hospital pharmacists. Data obtained was analysed with SPSS V20. About 20% of respondents had obtained an additional qualification; 19% had worked for a period of 5-10 years. Almost 90% of the pharmacists had sound knowledge of the pharmaceutical care philosophy; over 60% went on ward rounds at least once a week; 64.8% conducted medication interviews. There was a correlation between respondents' category and extent of participation in ward rounds, counselling in-patients, having access to patient records and provision of drug consult to members of the health team. Pharmacists in Lagos State had adequate knowledge of pharmaceutical care practice which got better as they spent more years in hospital practice and with additional relevant qualifications. Comparatively, pharmacists in tertiary hospitals performed significantly better than those in secondary hospitals. An enabling environment should be provided for the pharmacists in the secondary institutions so as to encourage more involvement in the provision of pharmaceutical care to patients.

Key words; Guidelines, Hospital, Pharmaceutical Care, Pharmacists, Practice



INTRODUCTION

The concept of Pharmaceutical Care (PC) has been accepted globally as the primary mission of pharmacy practice. It is the direct provision of medication-related care for the purpose of achieving definite outcomes that improve a patient's quality of life [1]. A core principle of PC is for pharmacists to accept professional responsibility for patient outcomes [2]. PC puts first the patient's quality of life through the provision of safe and efficient healthcare while respecting the needs of healthcare professionals and society in general. Going by the various definitions of PC, it can be viewed as a professional Practice like those of medicine, dentistry, and nursing e.t.c. PC is the conceptual framework within which the changing roles of Pharmacists are defined. The goal is to optimize the patient's health related quality of life and achieve positive clinical outcomes within realistic economic expenditure [3]. The provision of PC is a direct response not

only to patients' needs but also to many **physicians'** call for Pharmacists to adopt a more professional role in Healthcare [4]. The responsibility to translate this concept into practice worldwide is a collective responsibility of pharmacists in every country of the world. Each country's pharmaceutical (public and private) sector has to create the enabling environment for practice. Enabling environment includes knowledge, communication skills, systems for data collection, documentation and transfer of information and a commitment to quality improvement and assessment [3]. PC as a concept may be familiar to most hospital pharmacists in Nigeria. A number of studies have been conducted on the Attitudes, Awareness, and Practice of PC by pharmacists in Nigeria [5, 6, 7]. This study was undertaken to assess and compare the extent of involvement of pharmacists in secondary and tertiary health institutions in provision of PC in Lagos State, Nigeria.

METHOD

The study was carried out in Lagos State, Nigeria, using four tertiary and fourteen secondary health facilities within Lagos metropolis between May to July 2013 involving a total of 347 pharmacists. This study employed a combination of telephone survey and self-completed questionnaires. Telephone interview was used to get information from two pharmacists each from the hospitals used for the study. Thirty six pharmacists altogether were interviewed by telephone. Questions were asked to ascertain if the hospitals had documented guidelines on pharmaceutical care for patients and if these guidelines were followed. In addition, a self-completed questionnaire was administered on all the pharmacists in the eighteen hospitals involved in the study. The questionnaire had 3 sections with 30 questions in all; section A on demography of the respondents, section B on the knowledge of the respondents on the philosophy of pharmaceutical care, and section C dwelt on the extent of involvement of the respondents in pharmaceutical care. Multiple responses were possible with some of the questions. The questionnaire was assessed for face and content validity and also pretested. A Cronbach's alpha was calculated to determine the reliability of the questionnaire. Data entry, cleaning and analysis was done using statistical package for social sciences (SPSS 20.0). Both descriptive and inferential (Chi square) statistics were generated

RESULTS

Demography: A total of 347 hospital pharmacists were studied. All cadres of hospital pharmacists (Interns-Directors of Pharmacy) in the selected hospitals were involved in the study. The questionnaire was completed by 252 pharmacists (72.6% Response rate). 40.5% of the respondents were pharmacists who worked in secondary institutions while 59.5 % practiced in the tertiary institutions. The demographic characteristics of the respondents are presented in Table 1. More than 70% of the respondents were between ages 20-39; about 20% of the respondents had obtained an additional qualification aside the first degree of BPharm or Pharm D.; a female to male ratio of approximately 2:1 was observed and 19% had worked for a period of 5-10 years.

Respondents' knowledge of Pharmaceutical Care: The study revealed that almost 90% of the pharmacists had sound knowledge of a set of essential indicators to assess knowledge and implementation of the pharmaceutical care philosophy (See Table 2 for details).

Availability and Perception of Pharmaceutical

Care Guidelines: Only a handful (11.1%) of respondents claimed to have PC Guidelines in their hospitals; 66.7% were positive that pharmaceutical care guidelines will lead to quality care for patients; 83.3% agreed that pharmaceutical guidelines are necessary for standardization of pharmaceutical care practice; but only 5.6% of them had made use of the guidelines more than three times. See Table 3 for details

Involvement in Pharmaceutical Care Practice:

The extent of pharmacists' involvement in providing pharmaceutical care to patients is documented in Table 4. More than 60% of pharmacists go on multi-disciplinary ward rounds at least once a week; 77% of the respondents go on pharmacists' rounds; 77% counsel/ educate in-patients on their disease condition and medicines whereas 87% of the pharmacists counsel/educate out-patients on their medication; 64.8% conduct medication interviews while 77% provide drug consult to other members of the health care team.

CORRELATIONS

Demographic data with Knowledge of

Pharmaceutical Care: There was a correlation between educational status and three out of the four knowledge questions. Similarly, there was a correlation between number of years in service and three of the four knowledge questions. See Table 5

Hospital Type with Extent of involvement in PC

Activities: This study revealed that there was a significant association between respondents' category and their extent of participation in multidisciplinary ward rounds ($p=0.014$), pharmacists rounds ($p=0.011$); counselling/educating in-patients on their disease conditions or drugs ($p=0.009$), having access to patient records ($p=0.019$) and provision of drug consult to other members of the health team ($p=0.000$). There was no significant association with counselling/educating out-patients on their disease conditions or medicines ($p=0.803$) and conducting medication interviews ($p=0.892$). Table 6

DISCUSSION

Demography: The data showed that more than 70% of the respondents were in the age group 20-39 years similar to other reports [6, 8-13]. This is the age group that carries out most of the pharmaceutical care activities in the hospital. Age 40 and above are either in the middle or top managerial level and they do most of the administrative activities of the hospitals. The female to male ratio of the respondents is

approximately 2:1. This is similar to other studies that have also reported more female pharmacists [14, 15]. This finding is, however, at variance with a number of studies conducted in Nigeria. The female to male ratio was reported to be 1:1.5 in a study in Rivers and Bayelsa states [12]; 1:2.4 in Kaduna-Zaria metropolis [10]; 1:1.2 in Enugu [11] and 1:1.4 in Ogun State [6] and 0.8:1 in a national survey in 2013 [16]. The National Census figure for Nigeria reported a female to male ratio of 1:1.05 [17]. Majority (89.6%) of the respondents demonstrated a very good knowledge of PC. Other studies have also reported a high level of knowledge of the major concepts of PC [6, 18]. Several studies have reported a very high level of awareness of PC [6, 19]. The significantly high proportion of respondents with very good knowledge is a very positive development for the practice of Pharmaceutical Care in Lagos state. This becomes even more significant if this high knowledge level is translated into practice.

In this study, a large majority (88.9%) of the pharmacists had BPharm degree. This is no surprise since BPharm degree is the approved pharmacy programme and the entry-point qualification to practice pharmacy in Nigeria [20]. Similar data have been reported in studies conducted in Nigeria; 68.8% in Bayelsa and River states study [12]; 58.8% in Zaria-Kaduna metropolis [10]; 87.2% in Enugu [11]. This study recorded very few (4.4%) PharmD holders, MSc/MPharm holders (11.1%) and FPCPharm holders (9.1%) in tandem with other studies conducted in Nigeria [10-12]. The PharmD programme is not yet a globally approved degree programme in Nigeria; only one Institution is running the programme. The FPCPharm is the postgraduate Fellowship programme of the West African Postgraduate College of Pharmacists, a 4-year programme with several Faculties including Clinical Pharmacy, Social and Administrative Pharmacy and Public Health. [21]. In this study, a statistically significant association existed between qualification of respondents and knowledge of pharmaceutical care. This clearly shows that additional qualification influences knowledge of pharmaceutical care and it is consistent with the submission of many pharmacy educators and practitioners who believe that postgraduate training is required before pharmacists assume patient-centered care roles. It is frequently argued that pharmacists, like physicians, need a guided transition period before assuming patient-centered care roles and for purposes of specialization [12, 22, 23]. For the purpose of achieving professional competence in the delivery of pharmaceutical care to patients, there is need for additional patient care related qualification(s). Ongoing changes in

pharmacy practice and pharmacists' roles will require pharmacists to have different and enhanced set of competencies. Providing quality patient care requires a knowledge base that is continuously expanded and being updated. Each pharmacy practitioner must remain a dedicated learner throughout his/her years in practice. As professional practice changes and evolves, so too do the competencies for pharmacists.

The undergraduate curriculum for the pharmacy programme (BPharm) in Nigeria has limited clinical pharmacy and PC contents [24, 20]. This emphasises the need for additional training in pharmaceutical care provision usually offered at the PharmD, MSc, MPharm degree programmes and the West African Postgraduate Fellowship (FPCPharm) if you must develop and /or acquire the competences and skills to effectively provide PC. In general, in addition to positively influencing core task performance, education level is also positively related to creativity and citizenship behaviours and negatively related to on-the-job substance use and absenteeism [25]. From this study, there was a significant association between the number of years of hospital practice and the hospital pharmacists' understanding of some of the key components of pharmaceutical care. Again, expertise is cultivated through prolonged or intense experience through practice and education [26]. There are skills crucial to providing PC and skills, which, in general, are learned or acquired through practice [27].

The longer in service, the more practice experience gathered and the more exposures to training opportunities to learn new skills and updated knowledge. Pharmaceutical care guidelines will bring about consistency in the provision of pharmaceutical care in the health institutions and also support continuity of care. In this study, very little attention was focused on this subject as only a handful of the hospitals had PC Guidelines. More so, even for those who had, the guidelines were hardly utilized. It is however encouraging that a large majority of respondents had very positive opinions about PC Guidelines and their use as 66.7% agreed that PC Guidelines will lead to quality care for patients and 83.3% agreed that PC Guidelines are necessary for standardization of pharmaceutical care practice. For the extent of involvement of the respondents in pharmaceutical care, more of the respondents participated in pharmacists' rounds (77.8%) than in the multidisciplinary ward rounds (63.5%). This is an indication of some degree of non-cooperation among the health care team. Patients and health workers alike will benefit more if all healthcare providers work as a team contributing their

specialized knowledge and skills [expertise] to patient care efforts.

Pharmacists use their expertise in medicines to optimise health outcomes and minimise medication misadventure. They apply their knowledge of poisons to promote their safe use and avoid harm to users and others in the community. In essence, Pharmacists are health professionals who possess a unique and complex body of knowledge and skills which they apply on behalf of other members of the community to optimise health outcomes from medicines [28]. In healthcare, teamwork is associated with increased patient safety [29, 30, 30].

Only 48.8% of the respondents had access to the patient medical records. This is another critical limitation to effective PC provision by pharmacists. There was a significant association between the categories of the respondents and the level of pharmaceutical care services provided; pharmacists in the tertiary hospitals provided greater PC activities than those in the secondary hospitals. Further, pharmacists are participating more in ward rounds, either multi-disciplinary or pharmacist ward rounds now in contrast to the report of a study in a tertiary hospital in South West Nigeria [32]. Pharmacists-patient medication counselling is an important means of achieving pharmaceutical care. It is interactive in nature and involves a one to one interaction with patients/caregiver. The ultimate goal of counselling is to provide information directed at encouraging safe and appropriate use of medication. This study revealed that 22.7% and 13.1% of the respondents respectively had never counselled or educated in-patients and out-patients on their disease condition or medication use. Further, 23% of the respondents had never provided drug consult to the other members of the health team. Providing drug consult to other members of the health team may be on request, but patient counselling is a must-do. There is therefore a need for improved patient communication. The study also revealed a significant association ($p=0.009$) between the respondents' category and the extent to which they counselled/ educated hospital in-patients on their disease conditions or medications with greater involvement at the tertiary hospital level. This is at variance with a similar study [33]. Finally, there was a significant association between the respondents' category and the extent to which they had access to patient medical records. ($p=0.019$) with more of the pharmacists in the tertiary health facilities having access to the patient medical records.

CONCLUSION

The study revealed that the concept of pharmaceutical care is gaining increasing prominence among hospital pharmacists in Nigerian health care system even though most of the hospital pharmacists provide the care to the patients without the use of documented guidelines. The study revealed that pharmacists have adequate knowledge of pharmaceutical care practice. It was also revealed that the knowledge of pharmaceutical care gets better as the pharmacists spend more years in hospital practice. The study showed that additional relevant qualification has influence on the knowledge and understanding of providing pharmaceutical care to patients. It was also established that more hospital pharmacists are participating in multidisciplinary ward rounds and pharmacists' rounds; they are also getting more involved in educating/counselling patients on their disease conditions and medication use. However, the pharmacists do more of out-patient counselling than the in-patient counselling. Comparatively, pharmacists in tertiary hospitals performed significantly better than those in secondary hospitals. Based on the findings, the study wishes to recommend that management staffs of the secondary and tertiary health institutions should be made to be aware of the importance of having documented guidelines for pharmaceutical care for patients and should be encouraged to develop the guidelines with a view to making use of them. Electronic medical records should be introduced in the hospitals as this will go a long way in removing some of the barriers pharmacists encounter while trying to access patient medical records. Policies to enforce access to patient medical records by pharmacists should be put in place by appropriate authorities in the health institutions and the country as a whole. This study identified the strong need to encourage pharmacists to obtain additional qualifications that will enhance their pharmaceutical care skills. Team work, as exemplified by multi-disciplinary ward rounds involving pharmacists, should be vigorously pursued and encouraged. An enabling environment should be provided for the pharmacists in the secondary institutions so as to encourage more involvement in the provision of pharmaceutical care to patients.

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Table1. DEMOGRAPHICS

Variable	Frequency	%
<u>Group status</u>		
Secondary	102	40.5
Tertiary	150	59.5
Total	252	100.0
<u>Age of respondents (years)</u>		
20 to 29	83	32.9
30 to 39	101	40.1
40 to 49	43	17.1
>=50	25	9.9
Total	252	100.0
<u>Qualifications obtained (Multiple Response)</u>		
B Pharm	224	88.9
Pharm D	11	4.4
MSc	18	7.1
FPCPharm	23	9.1
M Pharm	10	4.0
<u>Years of hospital practice</u>		
5 – 10	48	19.0
11 – 15	17	6.7
16 – 20	9	3.6
>20	18	7.1
Non response	160	63.5
Total	252	100.0
<u>Sex of respondents</u>		
Male	84	33.3
Female	163	64.7
None response	5	2.0
Total	252	100.0

Table2: Respondents' knowledge of PC

VARIABLES	*Positive Responses No (%)	Not Sure No (%)	**Negative Responses No (%)	No Response No (%)	Total No (%)
The focus of PC is on patient management.	233 (92.4)	1 (0.4)	13 (5.2)	5 (2)	252 (100)
In PC, the pharmacist finds method to monitor the outcomes of drug treatment	226 (89.6)	6 (2.4)	13 (5.2)	7 (2.8)	252 (100)
The pharmacist takes responsibility for treatment outcomes	191 (75.8)	21 (8.3)	28 (11.1)	12 (4.8)	252 (100)
PC is a collaborative process that aims to prevent or identify and solve drug and health related problem	238 (92.4)	2 (0.8)	4 (1.6)	8 (3.2)	252 (100)
PC emphasizes the role of pharmacist in health promotion	232 (92.1)	8 (3.2)	2 (0.8)	10 (4.0)	252 (100)
The direct care pharmacist gives to patient on drug treatment and disease management and implementation of effective care plan	228 (90.5)	5 (2.0)	5 (2.0)	14 (5.6)	252 (100)
Effective communication with patient and other health care provider can help to detect / resolve therapy problem	239 (94.9)	0 (0)	5 (2.0)	8 (3.2)	252 (100)
Pharmacist is responsible for drug data evaluation and implementation of effective care plan	225 (89.3)	6 (2.4)	10 (4.0)	11 (4.4)	252 (100)
Information from patient, patient relation and patient case note is key giving care to patient	229 (90.9)	7 (2.8)	6 (2.4)	10 (4.0)	252 (100)
AVERAGE %	226 (89.6)	6 (2.4)	10 (4)	10 (4)	252; 100

* = Strongly agree/ Agree; ** = Strongly disagree/ disagree

Table 3. Availability and Perception of Respondents of PC Guidelines

PC Guidelines	Positive Responses		Not sure	Negative Responses		Total No (%)
	No (%)	No (%)	No (%)	No (%)	No (%)	
There are Guidelines for the practice of PC in my institution	4 (11.1)	7 (19.4)	25 (69.5)			36 (100)
PC Guidelines will lead to quality pharmaceutical care for patients.	24 (66.7)	8 (22.2)	4 (11.1)			36 (100)
PC Guidelines will lead to standardization of pc practice	30 (83.3)	3 (8.3)	3 (8.4)			36 (100)
	Once	Twice	Three times	More than three times	Don't know	Total
How many times have you made use of the PC Guidelines in your institution?	1 (2.8)	1 (2.8)	0 (0.0)	2 (5.6)	32 (88.9)	36 (100)

Table4: Extent of pharmacists' involvement in provision of pharmaceutical care to patients

PC Activity	Daily	Once weekly	Twice weekly	Thrice weekly	Never	No Response	Total No (%)
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	
Go on multidisciplinary ward rounds?	24 (9.5)	97 (38.5)	32 (12.7)	7 (2.8)	70 (27.8)	22 (8.7)	252 (100)
Go on pharmacist rounds?	35 (13.9)	93 (36.9)	53 (21)	15 (6)	27 (10.7)	29 (11.5)	252 (100)
Counsel/educate in-patient on them their disease condition or drugs?	105 (41.7)	50 (19.8)	24 (9.5)	14 (5.6)	29 (11.5)	30 (11.9)	252 (100)
Counsel/educate out-patient on their condition or medicine	177 (70.2)	22 (8.7)	8 (3.2)	12 (4.8)	9 (3.6)	24 (9.5)	252 (100)
Conduct medication interview?	103 (40.9)	34 (13.5)	17 (6.7)	16 (3.7)	44 (17.5)	38 (15.1)	252 (100)
Provide drug consult to other members of the health team	119 (47.2)	53 (21)	12 (4.8)	10 (4.0)	17 (6.7)	41 (16.3)	252 (100)

Table 5: Cross-tabulations of Demographic data with Knowledge of PC

Variable	Demography (Qualification and years in work)	Agree	Disagree	χ^2	df	P-value
In PC, the Pharmacists is finding methods to monitor the outcomes of drug treatment	BPharm/Pharm D	170(78.3%)	10(83.3%)	5.947	2	0.038**
	Additional	41(21.7%)	2(16.7%)			
	Total	211(100.0%)	12(100.0%)	14.605	3	0.035**
	5-10 years	15(17.6)	3(60.0)			
	11-15 years	9(10.6)	1(20.0)			
Pc is a collaborative process that aims to prevent or identify and solve drug and health –related problems	16-20 years	17(20.0)	0(0.0)	7.721	2	0.028**
	>20 years	85(100.0)	1(20.0)			
	Total	5(100.0)	4(100.0%)	13.334	3	0.040**
	BPharm/PharmD	180(77.6%)	4(100.0%)			
	Additional	52(22.4%)	0(0.0%)			
Pharmacist is responsible for drug data evaluation development and implementation of effective care plan	Total	232(100.0%)	4(100.0%)	0.042	2	0.979
	5-10 years	48(53.3)	0(0.0)			
	11-15 years	16(17.8)	1(50.0)	15.702	3	0.025**
	16-20 years	9(10.0)	0(0.0)			
	>20 years	17(18.9)	1(50.0)			
Information from patients, patient relations and patients case note is key to giving care to patients	Total	90(100.0)	2(100.0)	9.477	2	0.024**
	BPharm/Pharm D	171(77.7%)	8(80.0%)			
	Additional	49(22.3%)	2(20.0%)	4.677	3	0.197
	Total	220(100.0%)	10(100.0%)			
	5-10 years	45(52.9)	1(33.3)			
Information from patients, patient relations and patients case note is key to giving care to patients	11-15 years	15(17.6)	2(66.7)	9.477	2	0.024**
	16-20 years	7(8.2)	0(0.0)			
	>20 years	18(21.2)	0(0.0)	4.677	3	0.197
	Total	85(100.0)	3(100.0)			
	BPharm/Pharm D	51(82.3%)	121(17.7%)			
Additional	11(17.7%)	38(23.9%)	9.477	2	0.024**	
Total	62(100.0%)	159(100.0%)				
Information from patients, patient relations and patients case note is key to giving care to patients	5-10 years	47(52.8)	0(0.0)	4.677	3	0.197
	11-15 years	15(16.9)	1(100.0)			
	16-20 years	9(10.1)	0(0.0)			
	>20 years	18(20.2)	0(0.0)	9.477	2	0.024**
	Total	89(100.0)	1(100.0)			

**p < 0.05

Table 6: Cross-tabulations of Hospital Type with extent of involvement in pharmaceutical care activities

PC Activities	Hospital type	Involved No (%)	Not Involved No (%)	χ^2	df	P-value
Go on multidisciplinary rounds	Secondary	71(44.4)	19(27.1)	6.071	1	0.014**
	Tertiary	89(55.6)	51(72.9)			
	Total	160(100.0)	70(100.0)			
Go on pharmacists rounds	Secondary	83(42.3)	7(25.9)	7.658	1	0.011**
	Tertiary	113(57.7)	20(74.1)			
	Total	196(100.0)	27(100.0)			
Counsel/educate in-patients on their disease conditions or drugs	Secondary	75(38.9)	11(37.9)	7.109	1	0.009**
	Tertiary	118(61.1)	18(62.1)			
	Total	193(100.0)	29(100.0)			
Counsel/educate out-patients on their disease conditions or medicines	Secondary	82(37.4)	3(33.3)	0.062	1	0.803
	Tertiary	137(62.6)	6(66.7)			
	Total	219(100.0)	9(100.0)			
Have access to patient medical records	Secondary	77(43.0)	7(21.2)	5.537	1	0.019**
	Tertiary	102(57.0)	26(78.8)			
	Total	179(100.0)	33(100.0)			
Conduct medication interviews	Secondary	66(38.8)	17(38.6)	0.001	1	0.892
	Tertiary	104(61.2)	27(61.4)			
	Total	170(100.0)	44(100.0)			
Provide drug consult to other members of the health team	Secondary	72(37.1)	7(41.2)	9.110	1	0.000**
	Tertiary	122(62.9)	10(58.8)			
	Total	194(100.0)	17(100.0)			

**P<0.05

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